

REMARKS

Claims 1, 3-8 and 10-13 are pending in this application, claims 2 and 9 are canceled and claims 1 and 8 are amended. The support for the claim amendments are as follows: Claim 1: (claim 2) and claim 8: (claim 9). No new matter has been added and no new issues are raised.

Claim rejections under 35 U.S.C. 102(b)

Claims 1-2 and 8-9 are rejected under 35 U.S.C. §102(b) as being anticipated U.S. Patent No. 5,016,817 to Ghate. (Office Action p.2)

Claims 1 and 8 have been amended to further include the technical feature of “a supply liquid circulation tube is formed in a hollow fiber shape” which is nowhere disclosed in Ghate.

In paragraph 6 on p.3 of the Office Action it is admitted that, “Ghate fails to disclose a hollow fiber shape circulation tube.”

The standard for anticipation is strict identity. Strict identity must be met in a single prior source to be anticipatory. Federal Circuit decisions affirm that anticipation is established only if all elements of a claimed invention are identically disclosed in a single prior art reference. *General Electric Co. v. Nintendo Co., Ltd.*, 179 F.3d 1350, 1356 (Fed. Cir. 1999) (“A judgment of invalidity for anticipation requires that a single prior art reference disclose every limitation in a patent claim.”); *Rockwell International Corp. v. United States*, 147 F.3d 1358, 1363 (Fed. Cir. 1998) (“Anticipation under 35 USC § 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention. ... Whether such art is anticipating is a question of fact.”).

Since Ghate fails to disclose a “liquid circulation tube formed in a hollow fiber shape” it fails to be anticipatory. By the amendment, the rejection is rendered moot.

Claim rejections under 35 U.S.C. 103(a)

Claims 4-7 and 10-13 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ghate. (Office Action p.3)

Not only does “Ghate fails to disclose a hollow fiber shape circulation tube,” but the reference alone does not at all teach or suggest the invention as now claimed.

The liquid supply methods of Claims 4-7 and 10-13 are structurally different from the liquid supply method of Ghate in that the liquid supply method of the claimed invention uses a hollow fiber shaped tube as a supply liquid circulation tube. By using the supply liquid circulation tube formed in a hollow fiber shape, it is possible to precisely and accurately determine the supply quantity of the supply liquid when a minor amount of supply liquid is supplied to the primary fluid. By using hollow fiber shaped circulation tubes it is also possible to obtain a liquid solution having a stable concentration without performing feedback control even if variations occur in the flow rate of the primary fluid. These prominent effects of the claimed invention can be found from the results of Examples shown in Tables 4 and 5 on p.18-19 of the specification. Specifically, as shown in Tables 4 and 5, when the flow rate of the primary fluid is raised from 12 L/min to 18 L/min and further to 24 L/min, **a stable pH and specific resistance can be obtained without varying the pressure of ammonia water of the supply liquid.**

In contrast, in the liquid supply method of Ghate, the concentration of the liquid mixture is controlled by **a feedback control method** in which the flow rate of the primary fluid is controlled according to the indication of the pressure gauge when the flow rate of the primary fluid varies.

Because of the different structure and different mechanical operation, the claimed invention cannot be logically deduced or inferred from the disclosure of Ghate, namely the claimed hollow fiber shaped tubes and the effects thereof. No *prima facie* rejection of obviousness has been established, therefore it is requested that this rejection be reconsidered and withdrawn.

In the Office Action, the Examiner rejected claims 2 and 9 under 35 U.S.C. §103(a) as being unpatentable over Ghate in view of U.S. Patent Application Publication No. 2005/0173003 to Laverdiere. (Office Action p.3)

Claims 2 and 9 have been canceled making this rejection now moot.

Even though claims 1 and 8 have been amended with the contents of claims 2 and 9, the combination of Ghate and Laverdiere do not teach or suggest the invention now claimed.

As described above, the claimed invention is structurally different from the invention of Ghate in that the Ghate reference does not disclose a hollow fiber shaped tube.

In the instant specification it is described on p.6, lines 9-11:

It is preferable that the supply liquid circulation tube is formed in the shape of a hollow fiber. The term "hollow fiber shape" refers to a fibrous tube-shaped structure having a hollow interior.

There is nothing in Ghate that is fibrous like or fibrous tube-shaped like. While the anticipation rejection comments on p.2, paragraph 3 of the Office Action, "Regarding claims 2 and 9, tube 154 of Ghate is seen as having a "hollow fiber shape," it in fact does not. Injection needle 154 with tip 174 of Ghate is fixed at one end of bore 170, which is typically approximately 3 mm in diameter, and extends through a mixing chamber wall into a mixing chamber 110. (col.3, lines 6-10). The structure of injection needle 154 is not at all fibrous like, nor does it suggest a "supply liquid circulation tube formed in a hollow fiber shape."

Meanwhile, the Laverdiere reference merely discloses a method of controlling the amount of liquid, but does not disclose a method of supplying and mixing a supply liquid to a primary fluid. More specifically, there is no teaching or suggestion that precisely and accurately determines the supply quantity of the supply liquid when a minor amount of the supply liquid is supplied to the primary fluid.

In addition, the method of Laverdiere is a kind of **feedback control method** that controls a pressure according to the variation of the discharge rate, and it is therefore, different from the claimed invention in technical idea.

In this way, the use of a hollow fiber shaped tube in the Laverdiere technique is totally different from the claimed invention. While Laverdiere discloses in [0090] "The frictional flow element 15 can be a tube or conduit or a bundle of parallel hollow fiber tubes, for example, of sufficient dimensions to create a measurable pressure drop as the fluid flows therethrough," the mere disclosure of fiber tubes does not suggest the **claimed structure**. The applicants use hollow fiber shaped tubes for a specific purpose in a specific structure which is not at all suggested by the combination of Ghate and Laverdiere.

More specifically, the Laverdiere reference does not suggest the specific capability of the claimed invention of obtaining a liquid solution having a stable concentration without performing feedback control even if variations occur in the flow rate of the primary fluid during

supplying and mixing the supply liquid to the primary fluid by using a hollow fiber shaped tube as a supply liquid circulation tube.

Since the claimed structure is nowhere suggested, the claimed invention is not logically obvious. It is requested that this rejection be reconsidered and withdrawn.

Claim 3 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ghate in view of U.S. Patent Application Publication No. 2004/0206634 to Shirakashi. (Office Action p.4)

Although the Shirakashi reference discloses a method mixing electrolytic solutions with ultrapure water in order to reduce the specific resistance of ultrapure water, the reference neither describes nor suggests the structural features of the claimed invention, in which a hollow fiber shaped tube is used as a supply liquid circulation tube and a solution with a stable concentration can be obtained without performing the feedback control. Shirakashi does not make up for the deficiencies of the Ghate as described above.

Since the claimed structure is nowhere suggested, the claimed invention is not logically obvious. It is requested that this rejection be reconsidered and withdrawn.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105.

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